

CLAIMS

1. An aspiration catheter for removing by aspiration a substance from a living body comprising:

5        a main shaft including a distal shaft and a proximal shaft, the main shaft having an aspiration lumen disposed therein, the aspiration lumen being used for removing the substance by aspiration;

10      a guidewire shaft disposed at the distal region of the distal shaft, the guidewire shaft having a guidewire lumen into which a guidewire is insertable, the guidewire lumen being disposed in the guidewire shaft;

15      a hub provided at the proximal end of the proximal shaft, the aspiration lumen extending to the hub; and a detachable core wire disposed in the aspiration lumen.

2. The aspiration catheter according to Claim 1, wherein a connector is fixed on the proximal end of the core wire, and the connector is mounted to the proximal end of the hub 20 in a detachable manner.

3. The aspiration catheter according to Claim 2, wherein the interior of the aspiration lumen can be flushed through the connector with the connector being mounted to the 25 proximal end of the hub in a detachable manner.

4. The aspiration catheter according to any one of Claims  
1 to 3, wherein the distal end of the core wire recedes from  
the distal end of the aspiration lumen in the proximal  
5 direction.

5. The aspiration catheter according to any one of Claims  
1 to 4, wherein the relationship  $0.3 \leq R1/R2 \leq 0.9$  is  
satisfied, wherein R1 is the maximum outer diameter of the  
10 core wire, and R2 is the minimum inner diameter of the  
aspiration lumen located on the distal side of the hub.

6. The aspiration catheter according to Claim 5, wherein  
the relationship  $0.4 \leq R1/R2 \leq 0.7$  is satisfied.

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7. The aspiration catheter according to any one of Claims  
1 to 6, wherein the core wire is a spring wire comprising a  
coiled metal wire.

20 8. The aspiration catheter according to any one of Claims  
1 to 7, wherein at least a portion of the core wire has a  
tapered shape in which the outer diameter becomes larger  
toward the proximal end.

25 9. The aspiration catheter according to any one of Claims

1 to 8, wherein at least a portion of the core wire has flexibility which becomes higher toward the distal end.

10. The aspiration catheter according to any one of  
5 Claims 1 to 9, wherein the core wire comprises stainless steel, a Co-Cr alloy, an Ni-Ti alloy, an Ni-Ti-Fe alloy, an Ni-Ti-Cu alloy, an Ni-Ti-Cr alloy, an Ni-Ti-V alloy, an Ni-Ti-Co alloy, an Ni-Ti-Nb alloy, an Ni-Ti-Pd alloy, an Ni-Ti-Cu-Cr alloy, or a composite thereof.

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11. The aspiration catheter according to any one of  
Claims 1 to 10, wherein the tip of the distal shaft is obliquely cut, the distal end of the guidewire shaft is positioned at the obliquely cut distal end of the distal  
15 shaft or protrudes from the distal end of the distal shaft in the distal direction, and the relationship  $0.5 \leq L_2/L_1$  is satisfied, wherein  $L_1$  is the length of the obliquely cut portion of the distal shaft in the longitudinal direction of the catheter, and  $L_2$  is the length from the proximal end of  
20 the guidewire shaft to the distal end of the distal shaft.

12. The aspiration catheter according to Claim 11,  
wherein the relationship  $2 \text{ mm} \leq L_1 \leq 10 \text{ mm}$  is satisfied.

25 13. The aspiration catheter according to any one of

Claims 1 to 12, wherein the guidewire shaft is provided with a radiopaque marker.

14. The aspiration catheter according to any one of  
5 Claims 1 to 13, wherein the proximal shaft comprises a polyimide.

15. The aspiration catheter according to any one of  
Claims 1 to 13, wherein the proximal shaft comprises a  
10 braided tube in which a metal braid and a polymer material are combined.

16. The aspiration catheter according to Claim 15,  
wherein the braided tube comprises an inner layer defining  
15 the aspiration lumen, a metal braid disposed on the outer surface of the inner layer, and an outer layer disposed on the outer surface of the metal braid.

17. The aspiration catheter according to any one of  
20 Claims 1 to 16, wherein at least a proximal portion of the proximal shaft has a flexural modulus of 1 GPa or more.

18. The aspiration catheter according to any one of  
Claims 1 to 17, wherein at least a portion of the distal  
25 shaft is applied with a hydrophilic coating that exhibits a

lubricating property in a wet environment.

19. A method for using the aspiration catheter according to any one of Claims 1 to 18, the method comprising the  
5 steps of inserting the aspiration catheter into a living body with the core wire being present in the aspiration lumen, then withdrawing the core wire, and applying a negative pressure to the aspiration lumen to remove by aspiration a substance from the living body.